herence to the rule of priority is far from meeting with general support, at least in this country.

The undersigned zoologists, whilst fully realising the justice and utility of the rule of priority in the choice of scientific names for animals, as first laid down by a committee of the British Association in 1842, wish to protest against the abuse to which it has been put as a result of the most recent codes of nomenclature, and consider that names which have had currency for a great number of years should, unless preoccupied, be retained in the sense in which they have been universally used. Considering the confusion that must result from the strict application of the rule of priority, they would welcome action leading to the adoption of a scheme by which such names as have received the sanction of general usage, and have been invariably employed by the masters of zoology in the past century, would be scheduled as unremovable.

(*Signed*)

E. Ray Lankester.
A. Sedgwick.
P. Chalmers Mitchell.
Sydney J. Hickson.
R. Bowdler Sharpe.
A. E. Shipley.
J. Arthur Thomson.
Gilbert C. Bourne.
E. S. Goodrich.
J. J. Lister.
W. C. McIntosh.
F. Jeffrey Bell.
W. T. Calman.
W. E. Hoyle.
A. M. Norman.
J. Graham Kerr.
A. Günther.
J. C. Ewart.
d'Arcy W. Thompson.
Henry Woodward.
E. A. Minchin.
P. L. Sclater.
W. N. Parker.
W. J. Sollas.
Edward B. Poulton.
Chas. O. Waterhouse.
A. Smith Woodward.
S. F. Harmer.
W. Bateson.
D. Sharp.
J. Stanley Gardiner.
G. A. Boulenger.

THE SOUTH AFRICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.

THE visit of the British Association to South Africa in 1905 in many ways undoubtedly represented the high-water mark of scientific effort in the various colonies for some time to come. Three years ago the results of the commercial inflation consequent upon the war were only feebly foreshadowed, and Governments and people still hoped that the depression then beginning to loom would pass away. To-day no reasonable person questions that the colonies will, for a time, have to be run on a lower level, and unfortunately education and scientific endeavour have to be adapted to this standard. As regards association matters, Cape Town apparently exhausted itself in the 1905 effort, but now congratulates itself as the headquarters of the newly chartered Royal Society of South Africa. The Transvaal maintains its vigorous interest in the aims of the association, and has largely contributed to the success of the subsequent meetings, Kimberley in 1906, Natal in 1907, and the Grahamstown gathering just concluded.

The Grahamstown meetings, held at the Rhodes University College, were attended by about seventy visiting members, an encouraging number when one considers distances in South Africa. These, together with about one hundred local members and associates, served to justify fully the continuance of the annual gatherings of the association, and afforded that personal touch with fellow-workers so much needed by the comparatively isolated colonial man of science. The meetings were held under the presidency of Sir Walter Hely-Hutchinson, G.C.M.G., Governor and Commander-in-Chief of Cape Colony, and in his unavoidable absence, owing to Parliament being in session, his place was taken by Prof. S. Schönland, one of the vice-presidents of the association. The Governor's presidential address, which dealt mainly with the progress of scientific research in South Africa, was read by the Hon. Mr. Justice Graham, a grandson of the founder of Grahamstown.

Though Grahamstown was not deemed worthy to receive the British Association in 1905, a function reminiscent of the parent association was the first annual award of the South African medal and grant of 50*l.*, raised in commemoration of the visit, "for achievement and promise in scientific research in South Africa." This was presented to Dr. Arnold Theiler, C.M.G., bacteriologist to the Transvaal Department of Agriculture, in recognition of his researches on animal diseases.

The meetings were divided into five sections, as follows:—Section A (mathematics, physics, astronomy, meteorology, and geography); president, Dr. Alex. W. Roberts; address, "Variable Star Research." Comparatively few papers were contributed to this section. Sections B and C (chemistry, metallurgy, geology, engineering, mining); president, Prof. E. H. L. Schwarz; address, "The Geological Discoveries of Economic Importance made by the Albany Pioneers." A dozen papers were offered on geological, mining, and engineering subjects. Section D (botany, zoology, agriculture, forestry, bacteriology, physiology); president, Prof. S. Schönland; address, "Some Aspects of Recent Progress in Pure and Applied Natural Science." This was the strongest section in contributions, the papers being mainly of zoological, botanical, and agricultural interest. Section E (education, psychology, history); president, Mr. E. G. Gane; address, "Tendencies in Modern Education." A special debate on native education took place in this section, the chief points of dispute being whether the native should be educated in the vernacular or the English language, and whether his education should be continued as far as university standards. About fifteen other papers dealt largely with different aspects of education. Section F (economics, archæology, ethnology); president, Mr. W. Hammond Tooke; address, "Notes on the Earlier Contributions to South African Anthropology." A dozen other papers were devoted mainly to anthropological subjects, and a demonstration of the ethnological exhibits in the Albany Museum was included.

The social functions included a reception by the Mayor and Corporation, receptions and entertainments by the various educational organisations of the city, visits to local institutions and places of interest, including a day at Port Alfred, and half a day at an ostrich farm. The evening popular lectures included one by Prof. G. E. Cory, on the history of the Eastern Province, and another by Dr. Theiler, on animal diseases in South Africa.

At the closing meeting of the council it was decided to hold the next (seventh) annual meeting of the association at Bloemfontein, under the presidency of the Governor of the Orange River Colony.

The annual meetings of the South African Ornithologists' Union were held conjointly with the meetings of the association, and were comparatively well attended. The president, Prof. J. E. Duerden, gave an address devoted to his researches upon the domesticated ostrich in South Africa, and several other papers on more orthodox ornithological subjects were contributed. At the business meeting a discussion took place as to the conduct of the Journal of the Union, when it was decided to issue a series of popular bulletins in addition to the Journal, with a view to encourage a wider interest in ornithological matters amongst sportsmen, farmers, and others.

J. E. DUERDEN.

Subjoined are extracts from the address prepared by Sir Walter Hely-Hutchinson, president of the South African Association:—

A remarkable advance has taken place in South Africa of late years in the matter of general public interest in scientific matters. Scientific men have taken an interest in, and have studied, South Africa for more than 150 years—La Caille, Le Vaillant, Herschel, Burchell, Lichtenstein, Andrew Smith, for example, are names which will be familiar to you, and will always be remembered in connection with early scientific inquiry and development in South Africa. But it is not so many years ago that scientific men were prone to be generally regarded in South Africa as an interesting class of persons who unselfishly devoted their lives to asking questions of nature, and to getting further conundrums for answers—amiable enthusiasts who actually worked, many of them, for nothing, read papers to each other on all sorts of abstruse subjects at the meetings of the Philosophical Society, and no doubt found out a great many interesting things, but were more or less outside the real and practical business of making a living. The general and commonplace view probably was, that when it came to dealing with the problems and difficulties of everyday life, your "practical man" was more likely to be successful, or more useful as an adviser, than the scientific man who was continually betraying an almost indecent curiosity about the secrets of nature, which, in some of its phases, might be regarded by many people as not wholly orthodox or reverent, and devoted his time and his intellect to the solution of questions which did not appear to have any practical bearing on the ordinary problems of life. By degrees, however, the practical value of scientific inquiry, and of scientific knowledge, became more generally apparent. Overlapping boundaries of farms, for instance, and consequent litigation, demonstrated the necessity of a scientific system of survey. Thousands of pounds have since been spent on the triangulation of the Cape Colony, and a secondary triangulation is in progress. The main triangulation has been extended throughout South Africa, and the work has been carried forward through Northern Rhodesia to Tanganyika in the shape of a geodetic survey which will in due course be prolonged to Cairo. With this great work the name of David Gill, the first president of this association, will always be honourably associated. The American inquiry into the causes of Texas fever, and the scientific demonstration of the fact that the disease was carried by ticks, led to the scientific investigation of the causes of the many other diseases which affect our flocks and herds in this country; and whereas twenty years ago there was no bacteriological laboratory in South Africa supported by public funds, now there are at least four. The most remarkable advance has been made in the matter of discovering the means of immunising domestic animals against the manifold diseases to which they are subject in this country, and the great progress which has been attained in ascertaining the true causes of these diseases promises to lead to the discovery, in time, of the means of immunisation against all of them. It is, indeed, in the matter of fighting disease, whether amongst animals or plants, that the practical application of the results of scientific study has made its utility evident to the mass, especially to the rural portion, of the population. The mining industry has always been a scientific industry; its successful development, whether on the mechanical or on the metallurgical side, has always evidently depended on the advancement of science in its own particular spheres; but to impress on a practically minded rural population the inestimable value to themselves, and to their pastoral and agricultural undertakings, of scientific research (costly and slow as it necessarily is, and always must be) has been a work of time, and has required many object-lessons.

Let me record some of the achievements of science, in this one matter of immunisation against disease, in the course of the last ten or twelve years. A practical and effectual means of stamping out rinderpest, and of immunising cattle which have been exposed to infection, has been found. Mules can be and are effectually immunised against horse-sickness, and there are good hopes of the early discovery of a practical method of immunising horses against that disease. Although it has not been as yet found possible to immunise stock artificially against east coast fever, the investigations which have been made into that disease have made it possible to recommend precautions, which have proved successful, for preventing the disease from making its appearance on a farm, and have demonstrated the possibility of clearing infected areas. A practical method of vaccination against biliary fever, which in donkeys, mules, and horses is stated to be a success, has been discovered. The possibility of producing a serum which is stated to have a strong preventive action in cases of heartwater in cattle, sheep, and goats has been demonstrated. Methods of inoculation against blue-tongue in sheep, which are likely to prove to be of considerable practical value, have been discovered. It is scarcely necessary that I should refer to the widespread confidence which is felt, by those interested in pastoral pursuits, in the vaccines against anthrax, quarter-evil, Cape red-water, and lung-sickness, which are issued from the various Government laboratories.

As regards diseases and insect pests of plants, the plague of the Dorthesia insect, which twenty years ago threatened to extinguish the cultivation of oranges in the Cape Colony, and led to the destruction of great numbers of blackwood trees and to the abandonment of that beautiful tree for street planting, was stopped in 1892 by the introduction of the Vedalia ladybird. The discovery of this remedy was due to the scientific study of insects. Fruit trees infected with scale insect can now be safely fumigated with hydrocyanic acid gas. This remedy is essentially the outcome of scientific inquiry. The continued cultivation of the vine, which was gravely threatened by the Phylloxera, has been made possible by the introduction of the method of grafting on "American stocks." This method, which is simple, has been developed by means of an infinite amount of close study and by innumerable scientifically conducted experiments. Study of the locust problem has shown how the great swarms of voetgangers, which cause such enormous destruction of crops, and even of grass, can be annihilated easily, and at relatively slight expense, by the adoption of a method discovered and developed in South Africa. The entomologist, the chemist, and the engineer have amongst them solved the problem of the codlin moth, and it only remains for the horticulturist to apply effectually the knowledge which they have gained in order materially to reduce, or even to get rid of, the ravages of that pest of our apple orchards. There is promise that the destructive mealie-borer may prove to be controllable by simple means. This problem, as well as the problem of the fruit fly, is now being investigated in the Government laboratory at Grahamstown; and it does not seem too much to hope that before many years have elapsed the scientific plant-breeder will have succeeded in evolving varieties of wheat and oats which will fully resist rust, whilst proving quite satisfactory in other respects.

Vast strides in the matter of the study of the hybridisation of plants, and in the selection and fixing of characters of varieties, have been made during the last few years by the application of new theories of the transmission of characters, theories which were first formulated more than forty years ago by Gregor Mendel to explain the results which he obtained in crossing varieties of the sweet-pea in his monastery garden. Mendel published the result of his work in 1865, but until 1901 it appears to have been completely lost to view. Probably the good Abbot little realised the profound importance of his deductions as regards the realm of practical agriculture. Hybridising used to be described as a game of chance, played between man and plants, in which the chances were in favour of the plants. Mendel's work changed the whole aspect of the problem. His discovery, that in cross-breds the egg-cells and pollen-grains are pure with respect to the characters which they individually carry, explains many facts which were previously mysterious, disturbs the foundations of many current theories of heredity, and indicates the possibility of picking out the valuable characters from different varieties and of building up an ideal type within a reasonable time. It is on these lines that, as I understand, the Transvaal plant-pathologist is now working in his endeavours to produce rust-resisting wheats suitable to South Africa.

The value, even of the results hitherto obtained (and they are few in comparison with the results which it is yet hoped to obtain), is really beyond estimate. That the high importance of scientific inquiry is now generally recognised in South Africa is demonstrated, not only by the confidence which is now shown throughout the country in the men who have obtained the results to which I have referred, but by the establishment and flourishing growth in South Africa of our own Association for the Advancement of Science, which includes in its ranks not only men who have made some branch of science their life-study, but many who, like myself, cannot pretend to the possession of accurate scientific knowledge, but are deeply impressed with the value to this community of the promotion of scientific inquiry and research.

I have dwelt at length on the subject of the efforts of science in the matter of combating disease because it is an aspect of the question of the advancement of science which more particularly and immediately affects the practical interests of the majority of the South African community. To survey the whole field would be impossible within the available limits of time, and without exhausting the patience of my audience, even if my acquaintance with the various subjects were sufficient to justify me in dwelling on them. I should like, however, to bear my testimony to the unselfish devotion to the cause of science which is customarily shown by scientific workers in South Africa, in whatever branch of science they may be interested. In these days of scrambling after fortune, the unrewarded or scantily rewarded efforts of men searching after scientific truth with the "obstinate humility which is the crown of genius" should compel our respect, our admiration, and our material, no less than our moral, support.

I say material support, for however unselfish scientific inquirers as a class may be, however ready to devote themselves to their work without special pecuniary reward, they are not, as a rule, men of private means, and it is necessary that they should at least be provided with a sufficiency of bread and butter. Scientific research is necessarily slow. It may be years before any particular line of inquiry leads to a practical result. Long and costly inquiries, such as Koch's inquiry into east coast fever, may even have only a negative result. If, therefore, scientific research is to be pursued in South Africa in the thorough manner in which it ought to be pursued, it should be endowed in some form or other. Such endowment may come either from public sources, so that all the tax-payers contribute to it, or from private sources. It is not for me to prescribe or to suggest from which source it should come. I merely indicate the necessity. I would not, however, wish it to be understood that the South African Governments have neglected their duty in the matter of promotion of scientific research. Far from it. In Cape Colony, the Grahamstown Laboratory, where much useful work was done by Edington, was established seventeen years ago, and has since been considerably enlarged. A laboratory and experimental station, in which Lounsbury carried out those remarkable investigations which proved that the Bont tick was the carrier of heart-water, and arrived at other exceedingly valuable and interesting scientific deductions, has been established at Rosebank. The Natal Government has established a laboratory near Maritzburg, at and in connection with which Watkins Pitchford and his assistants have done much useful work, notably by making the discovery that horses could be protected against horse-sickness by the exclusion of biting insects, and in the preparation of anti-toxic sera and of anti-venene; and the Transvaal Government, after liberally subsidising Theiler's epoch-making investigations, has recently built an experimental station, at a cost of some 60,000*l.*, which will bear comparison, so far as design and facilities go, with any such station in the world. Added to this, the Cape Government, besides incurring large expenditure on rinderpest experiments, contributed liberally to defray the out-of-pocket expenses of Beattie's magnetic survey, expended large sums on Gilchrist's investigation of South African marine biology, and joined with the other South African Governments in defraying the heavy cost of Koch's inquiry into east coast fever; and the Zululand Government bore the whole of the expense of Bruce's nagana investigations. It cannot be said, therefore, that the South African Governments have been backward in this matter. Much has been done, no doubt, but more is wanted.

It is not only in connection with the investigation of diseases that research is required. It is, no doubt, the practical value of that particular line of research which has contributed in a large degree to the popularisation in South Africa of the advancement of science. But it is the educative side of scientific research that will in the end prove of the highest and most permanent value to the community. That fact has been recognised by the Transvaal Government, which has provided, in its new experimental station, for the training of students, and a small commencement has been made in the matter of training research students in the laboratories of some of the colleges in Cape Colony.

NOTES.

WE notice with deep regret the announcement of the death of Prof. Henri Becquerel at the age of fifty-six.

AN international congress is to be held at the photographic exhibition which is being arranged to take place at Kiev from December 15, 1908, to January 15, 1909.

DR. ERIC A. NOBBS, agricultural assistant to the Cape Government, has been appointed director of agriculture in Rhodesia.

LIEUT.-COLONEL BOURGEOIS, chief of the geodetic section of the French Army Geographical Service, has been appointed professor of astronomy and geodesy in the Paris École polytechnique in succession to M. Poincaré, who has resigned.

THE herbarium formed by Mr. Duthie, and hitherto quartered at Saharanpur, has been transferred to the Imperial Forest Institute, Dehra Dun; any correspondence in connection with it should be addressed to the Imperial forest botanist of that institute.

DR. W. H. WILLCOX, lecturer on public health, pathological chemistry, and forensic medicine at St. Mary's Hospital Medical School, has been appointed senior scientific analyst to the Home Office in succession to the late Sir Thomas Stevenson.

THE British committee of the first International Congress of the Refrigerating Industries (Congrès international du Froid), to be held in Paris on October 5–12, at the Sorbonne, has issued a programme of British papers and resolutions to be brought before the congress. The various sections and the presidents are as follows:—I. Low Temperatures and their General Effects, Prof. d'Arsonval; II. Refrigerating Appliances, Prof. H. Léauté; III. The Application of Refrigeration to Food, M. A. Gautier; IV. The Application of Refrigeration to other Industries, M. E. Tisserand; V. Application of Refrigeration in Commerce and Transport, M. Levasseur; VI. Legislation, M. J. Cruppi. Lectures will be given by Prof. von Linde on refrigeration in dwelling places, and Prof. d'Arsonval on liquid air and very low temperatures. Further particulars can be obtained from the secretary of the British committee of the congress, 3 Oxford Court, Cannon Street, London, E.C.

A COMMITTEE is being formed to erect a monument to the late Prof. K. von Than, of the University of Vienna, whose death was announced recently. The monument will be set up at Ó-Beese, in Hungary, where Prof. von Than was born.